

## ABSTRACT OF THE DISCLOSURE

To determine the transplant compatibility of an in vitro cultured tissue, a method measures the stiffness of the cultured tissue by using a stiffness measuring device, which stiffness measuring device includes a detecting unit and calculation means, the detecting unit includes a contact unit, a vibrator connected to the contact unit, and a vibration detecting unit for detecting the vibration of the vibrator, and the calculation means determines stiffness information by calculation based on the detected result from the vibration detecting element; and by bringing the contact unit into contact with the cultured tissue. With this method the transplant compatibility of the cultured tissue can be nondestructively and easily determined easily and the quality of the cultured tissue can be appropriately controlled.